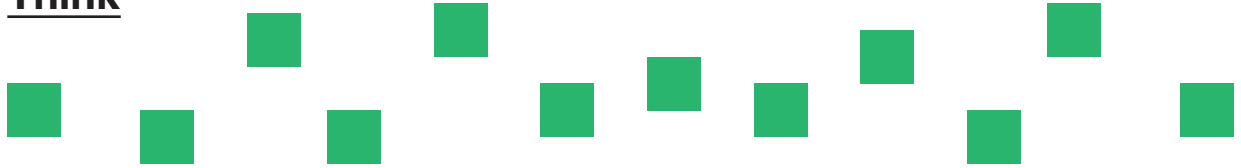
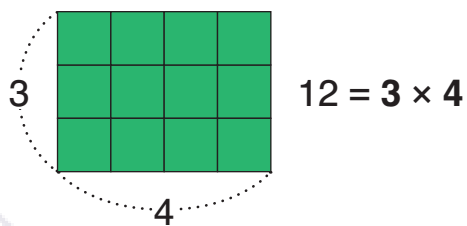
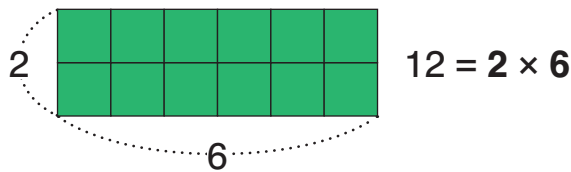
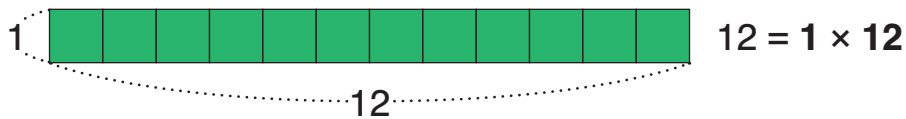


Think

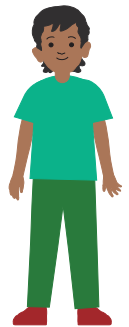


How many different rectangles can you form using all 12 squares? How many squares are along each side of each rectangle?

Learn

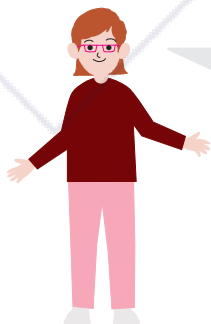


There are only 3 different rectangles.
 $1 \times 12 = 12 \times 1$



1, 2, 3, 4, 6, and 12 are **factors** of 12.

12 is a multiple of all of its factors.

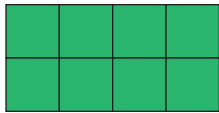


12 can be divided by 1, 2, 3, 4, 6, and 12 with no remainder.
We say that 12 is **divisible** by 1, 2, 3, 4, 6, and 12.

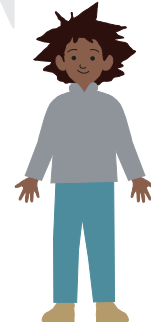
Do

- 1 What are the factors of 8?

 $1 \times 8 = 8$

 $\square \times \square = 8$

The factors of a number always include 1 and the number itself.



The factors of 8 are 1, \square , \square , and 8.

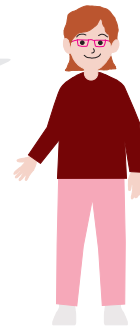
- 2 Find the factors of 18.

$1 \times \square = 18$

$2 \times \square = 18$

$3 \times \square = 18$

Start with 1 and then try 2, 3, etc. Why do we not have to check 6 or any more numbers after 6?



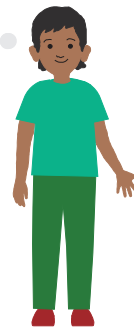
The factors of 18 are 1, 2, 3, \square , \square , and \square .

- 3 (a) Is 7 a factor of 14?

Is 14 divisible by 7? By 3?

- (b) Is 3 a factor of 14?

$14 \div 3$ will have a remainder.



4 Which of the following numbers have 6 as a factor?

6	16	36	46	54	60
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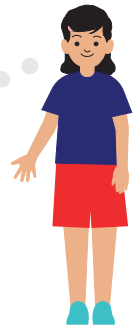
5 Find the factors of 75.

$$1 \times \square = 75$$

$$3 \times \square = 75$$

$$5 \times \square = 75$$

75 is an odd number, so I do not have to check any even numbers.



The factors of 75 are 1, 3, \square , \square , \square , and \square .

6 List the factors of each number from least to greatest.

(a) 15

(b) 21

(c) 36

(d) 48

(e) 54

(f) 60

(g) 72

(h) 100

7 Find the missing factors.

$$(a) 6 \times \square = 72$$

$$(b) \square \times 7 = 105$$

$$(c) 100 = 4 \times \square$$

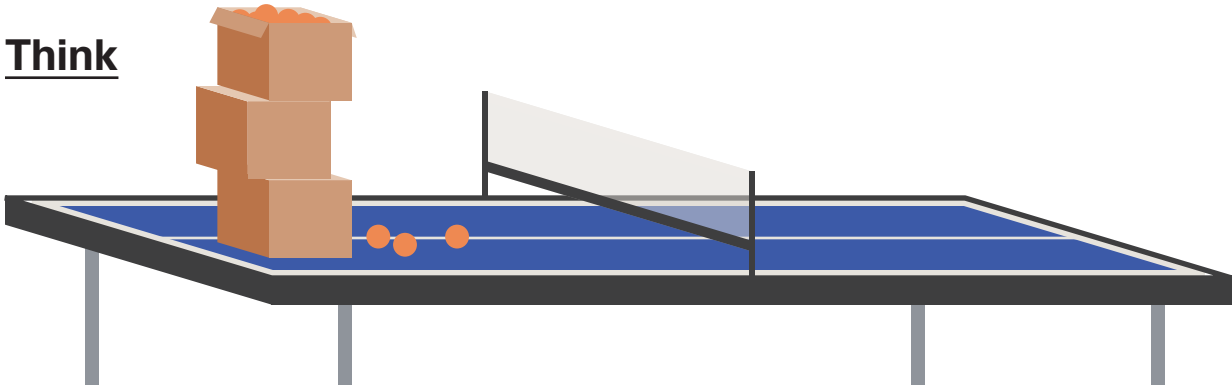
$$(d) 80 = \square \times 5$$

Lesson 5

Multiplying by a Multiple of 10

5

Think

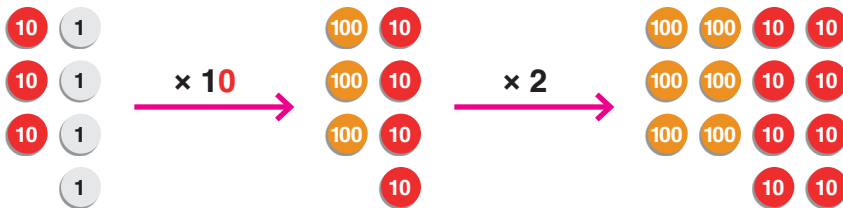


There are 34 ping pong balls in one box. How many ping pong balls are in 20 boxes?

Learn

$$34 \times 20$$

Method 1



$$34 \xrightarrow{\times 10} 340 \xrightarrow{\times 2} 680$$

$$\begin{aligned} 34 \times 20 &= 34 \times 10 \times 2 \\ &= 340 \times 2 \end{aligned}$$



Method 2



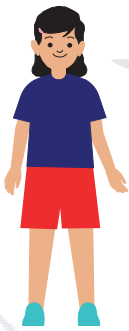
$$34 \xrightarrow{\times 2} 68 \xrightarrow{\times 10} 680$$

$$34 \times 20 = 34 \times 2 \times 10 \\ = 68 \times 10$$



Method 3

$$34 \times 2 \text{ tens} = 68 \text{ tens} \\ = 680$$



$34 \times 20 = 34 \times 10 \times 2$, so we can write a 0 in the ones place first, then multiply 34 by 2.

$$\begin{array}{r} 34 \\ \times 20 \\ \hline 0 \end{array} \longrightarrow \begin{array}{r} 34 \\ \times 20 \\ \hline 680 \end{array}$$

There are ping pong balls in 20 boxes.

Do

- 1 Find the product of 60 and 70.

$$60 \times 70 = \square$$

$$\begin{aligned} 60 \times 70 &= 60 \times 7 \times 10 \\ &= 420 \times 10 \end{aligned}$$



- 2 Find the product of 32 and 40.

$$32 \times 40 = 32 \times \square \times 10$$

$$= \square \times 10$$

$$= \square$$

- 3 Find the product of 25 and 30.

$$25 \times 3 \text{ tens} = \square \text{ tens}$$

$$= \square$$

- 4 Find the values.

(a) 68×90

$$\begin{array}{r} 68 \\ \times 90 \\ \hline \square \square \square 0 \end{array}$$

(b) 70×78

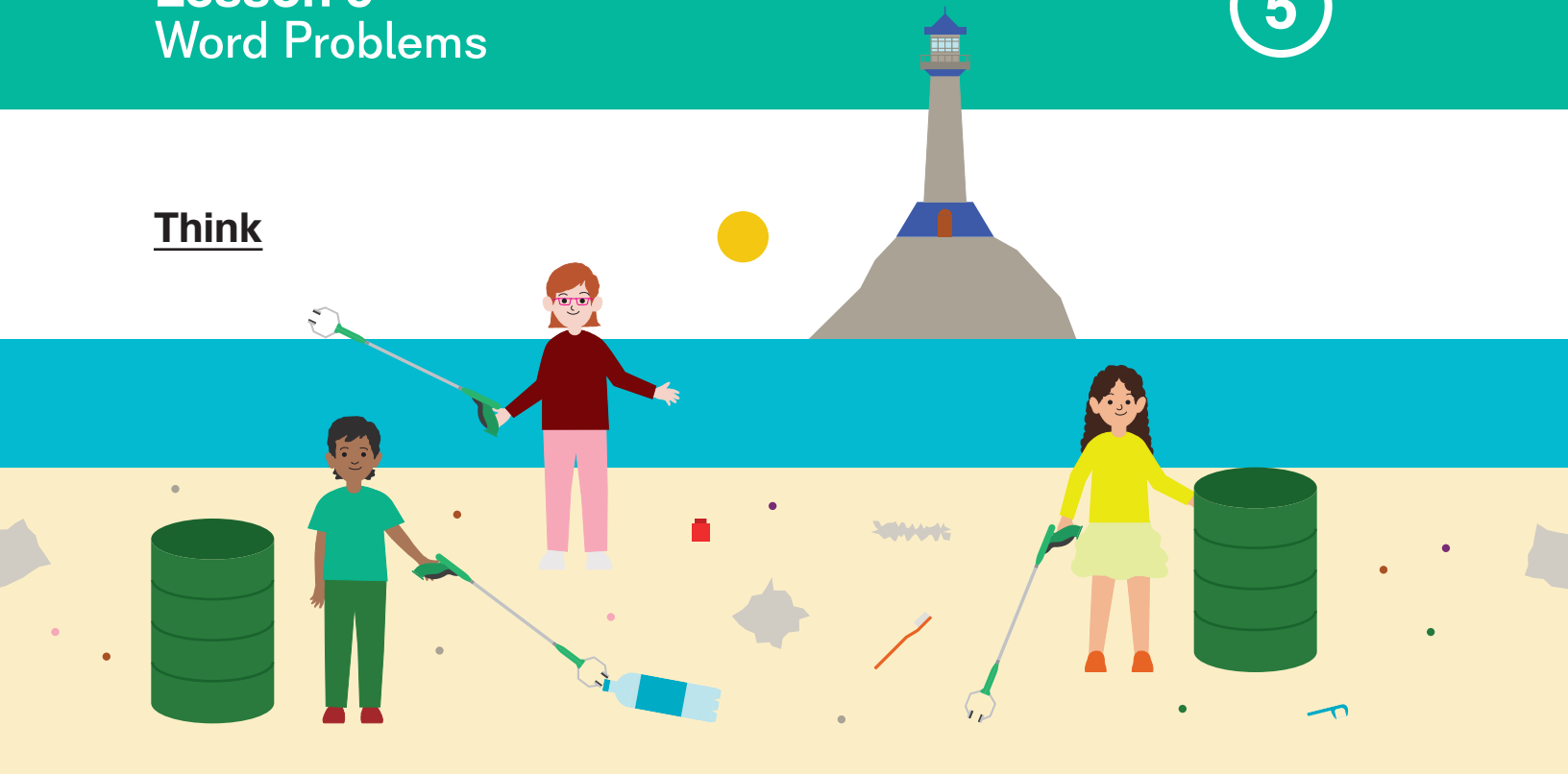
$$\begin{array}{r} 78 \\ \times 70 \\ \hline \square \square \square \square \end{array}$$

Lesson 5

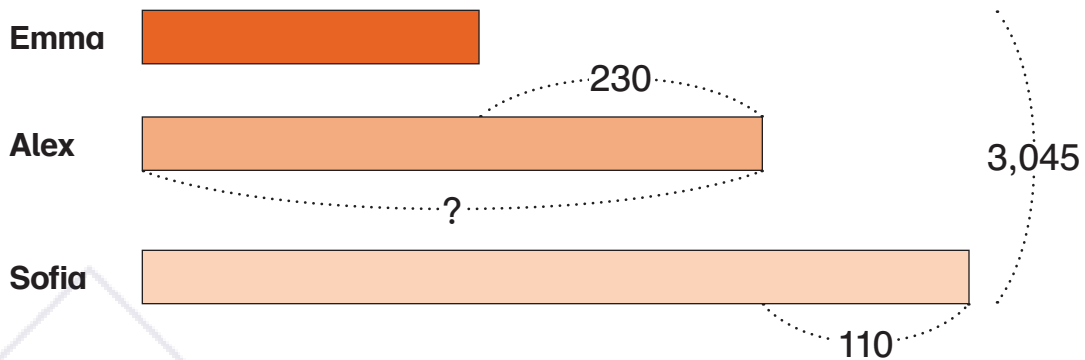
Word Problems

5

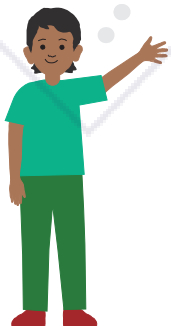
Think



Emma, Alex, and Sofia collected 3,045 pieces of trash in a beach clean-up project. Alex collected 230 more pieces of trash than Emma and 110 fewer pieces of trash than Sofia. How many pieces of trash did Alex collect?

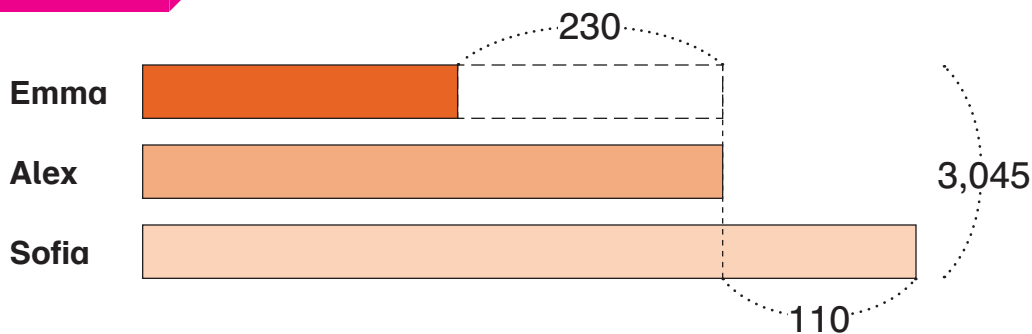


Which bar will I make 1 unit? How can I add or subtract to make equal units?



Learn

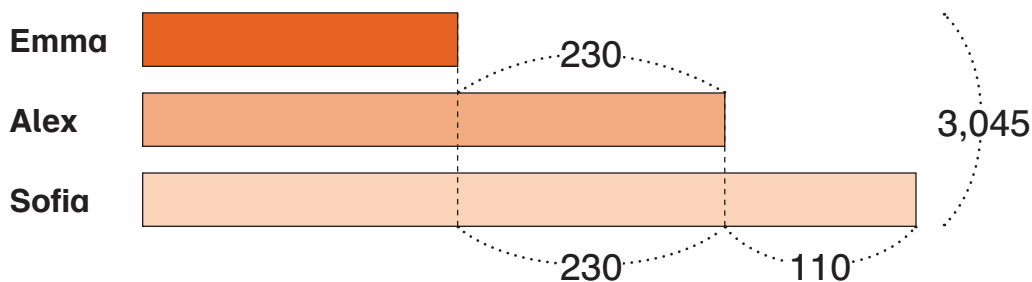
Method 1



$$3 \text{ units} \rightarrow 3,045 + 230 - 110 = 3,165$$

$$1 \text{ unit} \rightarrow 3,165 \div 3 = \boxed{}$$

Method 2



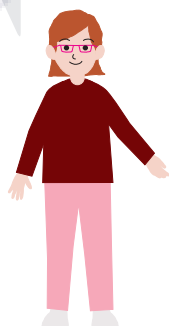
$$3 \text{ units} \rightarrow 3,045 - 230 - 110 - 230 = 2,475$$

$$1 \text{ unit} \rightarrow 2,475 \div 3 = 825$$

$$825 + 230 = \boxed{}$$

Alex collected $\boxed{}$ pieces of trash.

Whose bar was made
1 unit in each method?

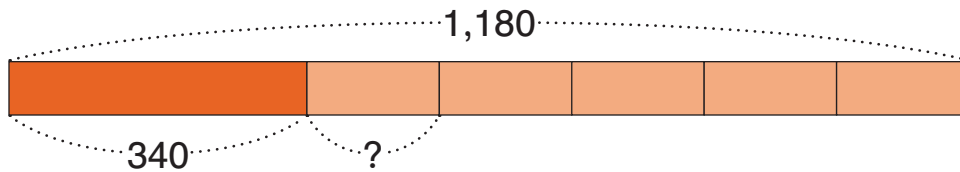


Which method had fewer steps? Why?

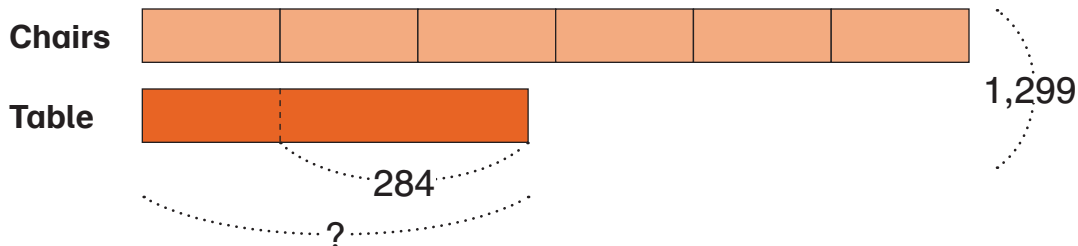


Do

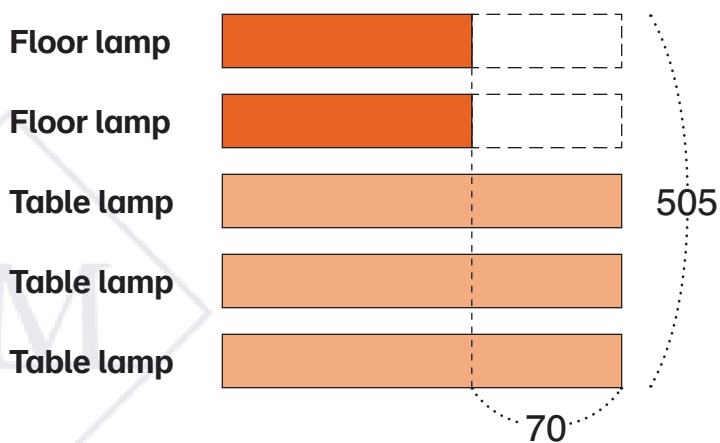
- 1 Dion had 1,180 trading cards. He kept 340 cards for himself and divided the rest equally among 5 friends. How many cards did he give to each friend?



- 2 Mr. Lopez bought a table and 6 chairs. He spent \$1,299. The table cost \$284 more than one chair. How much did the table cost?



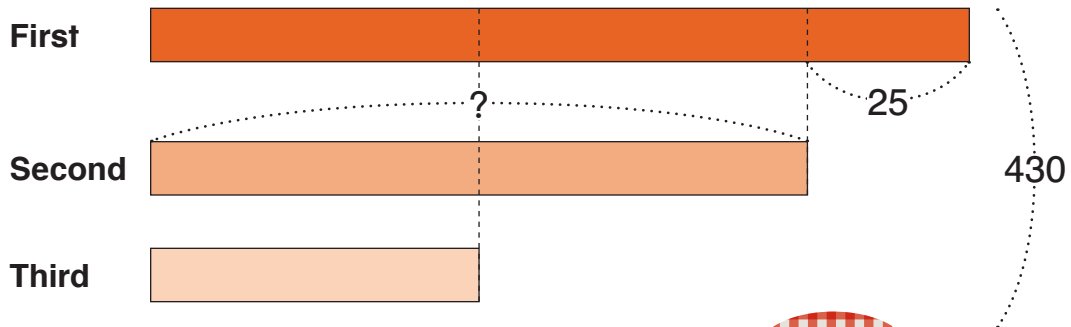
- 3 Mrs. Lopez bought 2 identical floor lamps and 3 identical table lamps for \$505. Each table lamp costs \$70 more than each floor lamp. How much did three table lamps cost altogether?



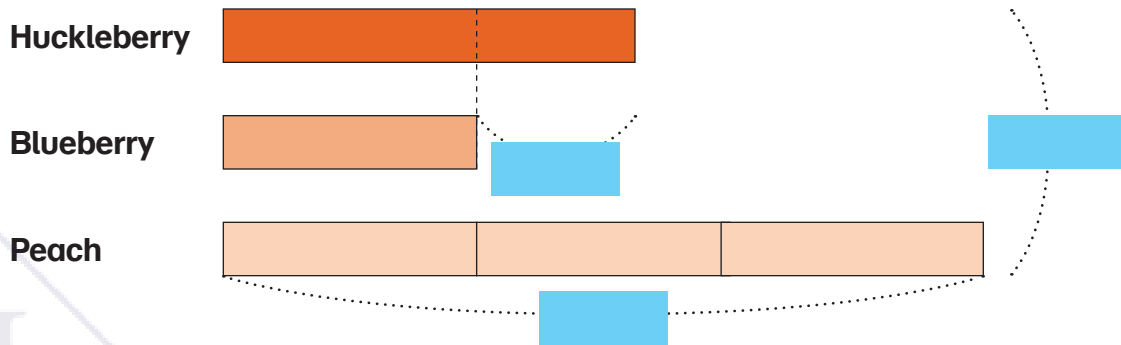
Which bar should I consider as 1 unit?



- 4 430 books are kept in 3 boxes. The second box has 25 fewer books than the first box and twice as many books as the third box. How many books are in the second box?



- A vendor at the market is selling jam. She has 980 jars in total of huckleberry, blueberry, and peach jam. She has 75 fewer jars of blueberry jam than huckleberry jam. She has three times as many jars of peach jam than blueberry jam. How many jars of peach jam does she have?



- 6 The sum of two numbers is 3,750. The second number is 180 less than twice the first number. What are the two numbers?

Lesson 2

Adding and Subtracting Fractions — Part 2

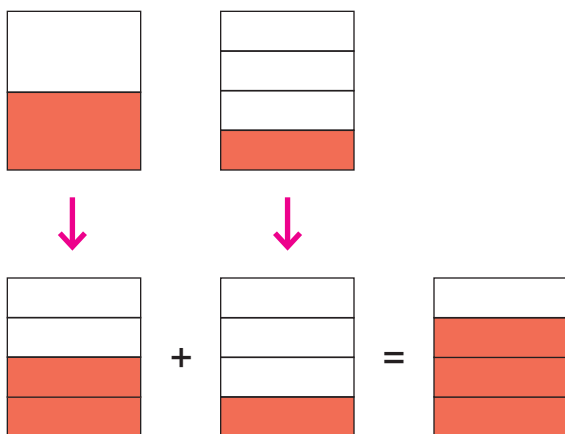
2

Think

There is $\frac{1}{2}$ L of grapefruit juice in a carton and $\frac{1}{4}$ L of grapefruit juice in a glass. How many liters of grapefruit juice are there altogether?



Learn



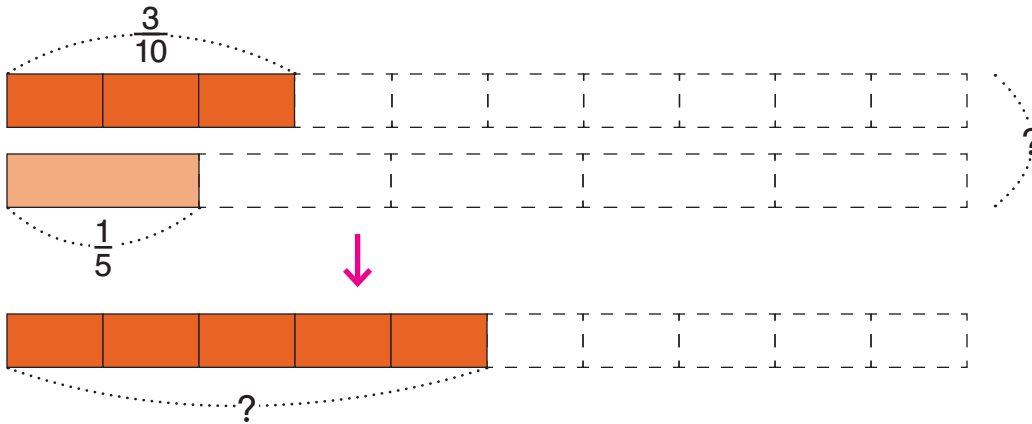
We cannot add halves and fourths together because they are different-sized units. If we change them to fractions with the same denominators, the units will be the same size.

$$\frac{1}{2} + \frac{1}{4} = \frac{\text{■}}{4} + \frac{1}{4}$$
$$= \frac{\text{■}}{4}$$

There are _____ L of grapefruit juice altogether.

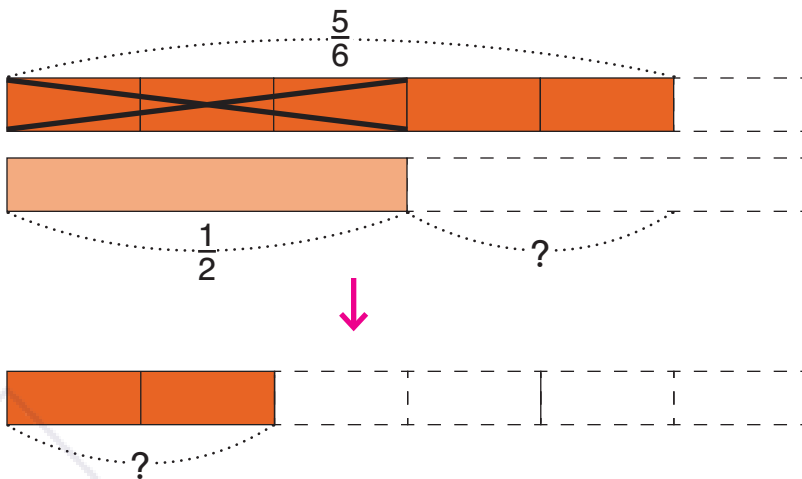
Do

- 1 Add $\frac{3}{10}$ and $\frac{1}{5}$.



$$\frac{3}{10} + \frac{1}{5} = \frac{3}{10} + \frac{\color{blue}\square}{10} = \frac{\color{blue}\square}{10} = \frac{\color{blue}\square}{2}$$

- 2 Subtract $\frac{1}{2}$ from $\frac{5}{6}$.

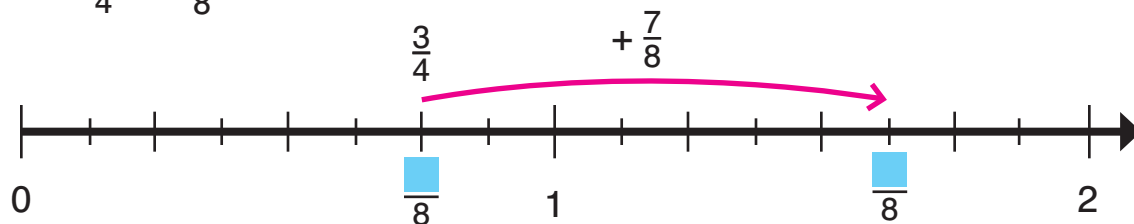


$$\frac{5}{6} - \frac{1}{2} = \frac{5}{6} - \frac{\color{blue}\square}{6} = \frac{\color{blue}\square}{6} = \frac{\color{blue}\square}{\color{blue}\square}$$

To add or subtract fractions,
we need to have equal units.

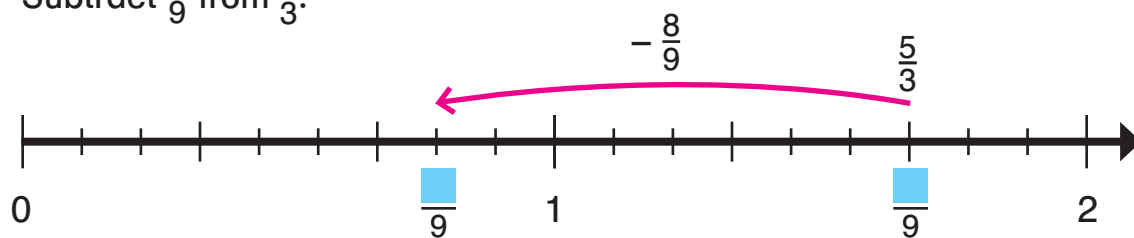


- 3 Add $\frac{3}{4}$ and $\frac{7}{8}$.



$$\frac{3}{4} + \frac{7}{8} = \frac{\square}{8} + \frac{7}{8} = \frac{\square}{8} = \frac{\square}{\square}$$

- 4 Subtract $\frac{8}{9}$ from $\frac{5}{3}$.



$$\frac{5}{3} - \frac{8}{9} = \frac{\square}{9} - \frac{8}{9} = \frac{\square}{9}$$

- 5 Add or subtract. Express each answer in its simplest form.

(a) $\frac{1}{9} + \frac{2}{3}$

(b) $\frac{1}{2} - \frac{1}{8}$

(c) $\frac{1}{6} + \frac{1}{2}$

(d) $\frac{3}{4} - \frac{7}{12}$

(e) $\frac{1}{5} + \frac{3}{10}$

(f) $\frac{2}{3} + \frac{7}{12}$

(g) $\frac{9}{8} - \frac{3}{4}$

(h) $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$

(i) $\frac{5}{12} + \frac{1}{2} + \frac{5}{6}$

- 6 Rope A is $\frac{7}{12}$ m long and Rope B is $\frac{2}{3}$ m long. What is the difference in length in meters between the two ropes?

Lesson 2

Multiplying a Fraction by a Whole Number — Part 1

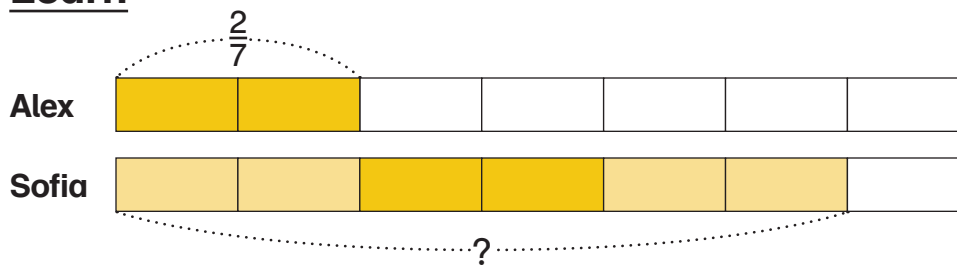
2

Think



Alex drank $\frac{2}{7}$ L of water. Sofia drank 3 times as much water as Alex. How much water did Sofia drink?

Learn



Method 1

$$3 \times \frac{2}{7} = \frac{3 \times 2}{7} = \frac{6}{7}$$

$$\frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{?}{7}$$

3×2 sevenths = ? sevenths



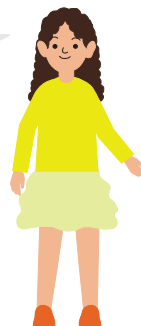
Method 2

$$3 \times \frac{2}{7} = 3 \times 2 \times \frac{1}{7}$$

$$\frac{2}{7} = 2 \times \frac{1}{7}$$

$$= 6 \times \frac{1}{7}$$

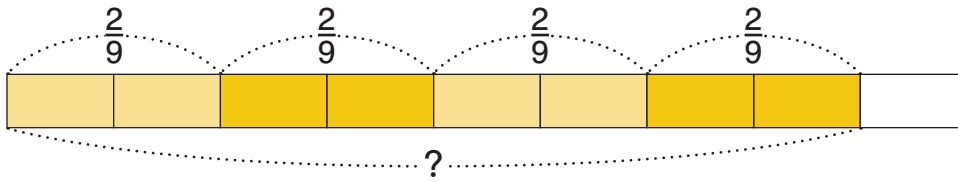
$$= \frac{6}{7}$$



Sofia drank _____ L of water.

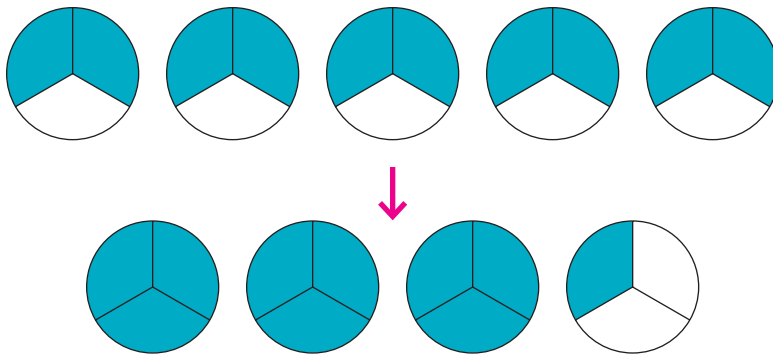
Do

- 1 Find the product of 4 and $\frac{2}{9}$.



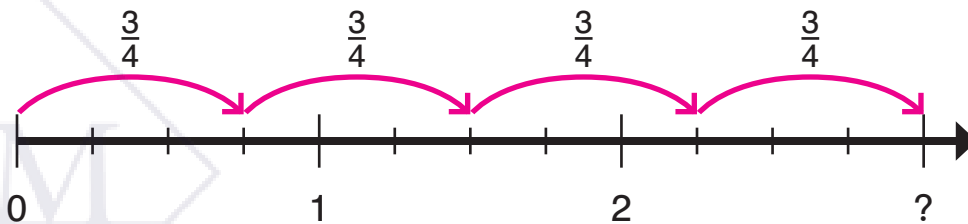
$$4 \times \frac{2}{9} = \frac{4 \times 2}{9} = \frac{\square}{9}$$

- 2 Find the product of 5 and $\frac{2}{3}$.



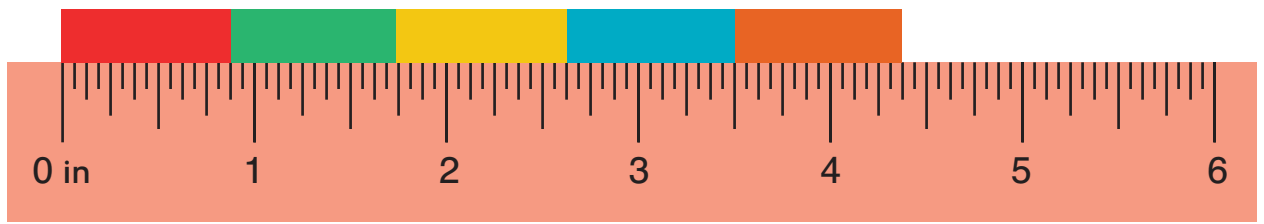
$$5 \times \frac{2}{3} = \frac{\square \times 2}{3} = \frac{\square}{\square} = \square \frac{\square}{\square}$$

- 3 Find the product of 4 and $\frac{3}{4}$.



$$4 \times \frac{3}{4} = \frac{\square \times 3}{\square} = \frac{\square}{\square} = \square$$

- 4 Mei is stapling 5 paper rectangles end-to-end on a bulletin board to make a border. Each rectangle is $\frac{7}{8}$ inches long. How long is the border?



$$5 \times \frac{7}{8} = \frac{5 \times \frac{7}{8}}{1} = \frac{35}{8} = 4 \frac{3}{8}$$

- 5 Multiply. Express each answer in its simplest form.

(a) $2 \times \frac{2}{5}$

(b) $2 \times \frac{3}{7}$

(c) $3 \times \frac{2}{9}$

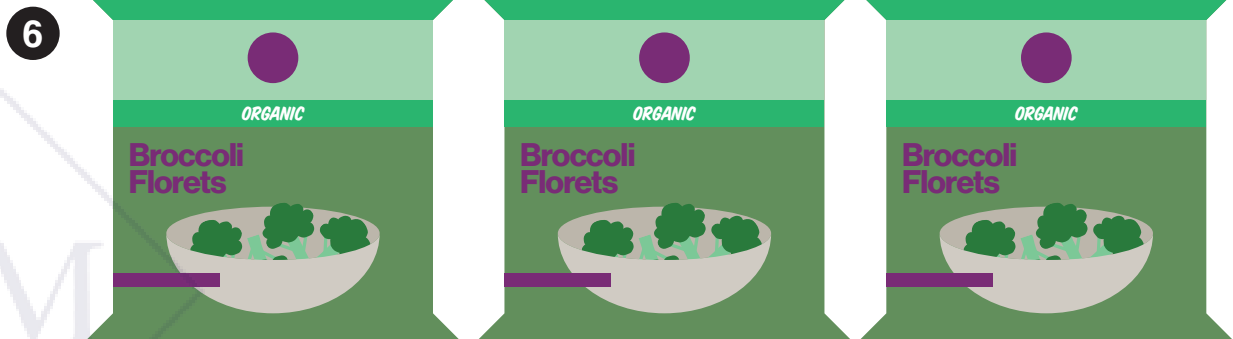
(d) $5 \times \frac{3}{4}$

(e) $2 \times \frac{4}{8}$

(f) $3 \times \frac{5}{2}$

(g) $6 \times \frac{3}{4}$

(h) $3 \times \frac{4}{5}$



A bag of broccoli weighs $\frac{3}{4}$ lb. Janice bought 3 bags of broccoli. How many pounds of broccoli did she buy?